

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 0000055310	FOR FURTHER ACTION		See item 4 below
International application No. PCT/EP2005/000827	International filing date (<i>day/month/year</i>) 28 January 2005 (28.01.2005)	Priority date (<i>day/month/year</i>) 30 January 2004 (30.01.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant BASF Aktiengesellschaft			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

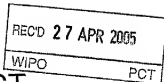
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|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Date of issuance of this report 31 July 2006 (31.07.2006)</td> </tr> <tr> <td style="padding: 2px;"> Authorized officer <div style="text-align: center; font-weight: bold;">Ellen Moyse</div> </td> </tr> <tr> <td style="padding: 2px;">e-mail: pt05@wipo.int</td> </tr> </table>	Date of issuance of this report 31 July 2006 (31.07.2006)	Authorized officer <div style="text-align: center; font-weight: bold;">Ellen Moyse</div>	e-mail: pt05@wipo.int
Date of issuance of this report 31 July 2006 (31.07.2006)				
Authorized officer <div style="text-align: center; font-weight: bold;">Ellen Moyse</div>				
e-mail: pt05@wipo.int				

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/EP2005/000827

International filing date (day/month/year)
28.01.2005

Priority date (day/month/year)
30.01.2004

International Patent Classification (IPC) or both national classification and IPC
A23K1/16, A23K1/00, C12N9/14

Applicant
BASF AKTIENGESELLSCHAFT

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the International application
- ☐ Box No. VIII Certain observations on the International application

2. FURTHER ACTION

If a demand for International preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/000827

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/000827

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-31
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-31
Industrial applicability (IA)	Yes: Claims	1-31
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- ✓ D1: WO 98/54980 A (HARZ HANS PETER ; BARENDSE RUDOLF CAROLUS MARIA (NL); GIST BROCADES NV) 10 December 1998 (1998-12-10)
- ✓ D2: US 2002/034798 A1 (BARENDSE RUDOLF CAROLUS MARIA ET AL) 21 March 2002 (2002-03-21)
- ✓ D3: WO 03/040398 A (ALAVATTAM SREEDHARA ; BATTELLE MEMORIAL INSTITUTE (US); BRODY RICHARD) 15 May 2003 (2003-05-15)
- ✓ D4: WO 98/28408 A (NOVO NORDISK A/S) 2 July 1998 (1998-07-02)
- ✓ D5: MARRS W M: "RHEOLOGY AS AN INDICATOR OF FUNCTIONALITY" WORLD OF INGREDIENTS, C&S PUBLISHERS, ARNHEM, NL, February 1996 (1996-02), pages 38-40,
- ✓ D6: US-B1-6 610 519 (HENRIKSEN LOTTE RUGHOLM ET AL) 26 August 2003 (2003-08-26)
- ✓ D7: EP-A-0 897 985 (F.HOFFMANN-LA ROCHE AG; DSM IP ASSETS B.V) 24 February 1999 (1999-02-24)
- ✓ D8: EP-A-0 257 996 (SUOMEN SOKERI OY) 2 March 1988 (1988-03-02)

1. Novelty (Art. 33(2) PCT)

The application relates to a process for the preparation of a phosphatase containing granulate wherein at least one phosphatase, a solid carrier and a stabilizing agent (such as agar, algin, carrageen, various gum, ...) and animal proteins are mixed and processed to granules. The stabilized or liquid enzyme formulation comprising at least one phosphatase is also claimed. The phosphatase granulates are suitable for the manufacture of animal feed.

As none of the available prior art clearly discloses the specific embodiments of the phosphatase or phytase granules preparation using a solid carrier and stabilizing agent (gum and animal proteins), the subject-matter of claim 1-31 is therefore new (Article 33(2) PCT).

However, claim 26 is drafted as a product by process claim and might not be admissible in the European regional phase. Such claim is admissible only if the product by itself fulfil the requirements for patentability and there is no other information available in the application which could enable the applicant to define the product satisfactorily by reference to its composition, structure or some other testable parameter.

2. Lack of inventive step (Art. 33(3) PCT)

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-31 does not involve an inventive step in the sense of Article 33(3) PCT.

The application relates to a process for the preparation of a phosphatase containing granulate wherein at least one phosphatase or phytase, a solid carrier and a stabilizing agent (such as agar, algin, carrageen, various gum, ...) and animal proteins are mixed and processed to granules. These granulates are suitable for the manufacture of animal feed.

The closest prior art D2 discloses a process for preparing aqueous phytase-containing liquids involving culturing microorganisms of the genus *Aspergillus* or *Trichoderma* in a medium containing assimilable carbon and nitrogen sources, filtering the medium, and subjecting the resulting filtrate to ultra-filtration to give an aqueous composition having at least 14,000 FTU/g. This aqueous liquid optimally can be used to prepare phosphatase containing granulates that can be incorporated in animal feedstuffs.

In light of D2, the technical problem underlying the present invention is identified as the provision of an alternative process for preparing granulates containing

phosphatase enzymes suitable for animal feed composition.

The solution proposed in claim 1-31 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

D1 discloses a process for the preparation of an enzyme-containing granulate where an aqueous enzyme-containing liquid is mixed with an edible carbohydrate-based solid carrier, such as starch, mechanically processed into granules, and subsequently dried. This enzyme granulate is suitable for the manufacture of animal feed compositions by mixing feed ingredients with the granulate, treating with steam and pelleting.

Moreover, D3 describes heat stable aqueous solutions or gels comprising a biologically effective amount of a protein and an effective stabilizing amount of a polysaccharide gum. Also disclosed are lyophilized compositions having biologically activity, where such lyophilized compositions are formed by lyophilising the stabilized solutions or gels of the invention.

As D3 clearly points out the stabilizing role of these polysaccharides gum (see description page 6 first par., pages 9-10, claims 1) for the proteins, the skilled person would consider to incorporate such stabilizers in the process of D2 (or D1 applied to phytase) in order to solve the technical problem (see also the review of the importance of hydrocolloid stabilisers in food products as described in D5).

As the enzyme stabilising effect of the additives such as gum or animal proteins (such as gelatin, albumin,...) are known to the skilled person in the art, he would find obvious to combine the teaching of D2 (or D1 applied to phosphatase) and D3 in order to arrive to the subject-matter of claims 1-31.

Consequently, in absence of a surprising technical effect linked to a specific composition, the subject-matter of claims 1-31 is merely an obvious combination of known features and common technical knowledge and is not considered to require an inventive step.